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March 18, 1996

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MAR 18 1996

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

By Messenger

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Re: File Nos. 3-DSS-P/LA-94; 4-DSS-P/LA-94; 174-181-SAT-P/LA-95;
CC Docket No. 92-297, RM-7872, RM-7722; Ex Parte Presentation

Dear Mr. Caton:

Pursuant to Section 1.1204(b)(7) of the Commission's rules, on behalf of Hughes Communications Galaxy, Inc., the two enclosed letters were prepared and delivered on March 18, 1996 to the individuals listed thereon.

An original and four copies of this letter are enclosed. The Commission's Public Notice DA 95-663, released April 5, 1995, waived the requirement that these materials be served on the parties to the restricted adjudicative proceeding involving applications in the 27.5-30.0 GHz part of the Ka band.

Respectfully submitted,

John P. Janka

Enclosures

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HUGHES
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A HUGHES ELECTRONICS COMPANY

EDWARD J. FITZPATRICK
Vice President

March 15, 1996

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Commissioner James H. Quello
Commissioner Andrew C. Barrett
Commissioner Susan Ness
Commissioner Rachelle Chong
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20004

Re: CC Docket No 92-297;
28 GHz Spectrum Band Plans

Dear Mr. Chairman and Commissioners:

In response to inquiries by Commission staff, Hughes Communications Galaxy, Inc. is writing to provide you with a written analysis of the impact on the GSO FSS service of the proposed Option 4 Prime 28 GHz band plan.

At the outset, I need to emphasize that Hughes is vitally interested in this proceeding because Hughes's SPACEWAY 28 GHz satellite proposal is moving forward with a planned launch date of ***late 1998***. Hughes's track record of implementing its stated business plans is demonstrated by its existing business at C and Ku band, as well as through its AMSC MSS and DIRECTV DBS ventures. In the next few weeks we will be announcing a strategic partnership with a leading global telecommunications company who shares our vision of using the 28 GHz band to provide universal access to a wide range of broadband interactive services through revolutionary 26" satellite terminals. However, the SPACEWAY system can come to fruition in the U.S. only if adequate bandwidth remains available at 28 GHz to the GSO FSS. ***Option 4 Prime simply does not provide sufficient usable capacity for an economically viable broadband direct access satellite service in the United States.***

Significantly, not one LMDS proponent has even attempted to quantify the financial or time delay costs that it claims would be imposed on its system under Option

5.[1/] Rather, those proponents spend pages upon pages generalizing in engineering jargon about technical issues. Cutting through all of that technical discussion in the LMDS letters, the bottom line is that virtually every service bears some system redesign costs under ***every*** band plan under consideration. Hughes previously has detailed many of those costs for the GSO FSS. The GSO FSS and some LMDS proponents would prefer 1000 MHz of contiguous spectrum in the U.S., but no one will get that, so we each need to make appropriate compromises and design adjustments to allow all proposed services to proceed as planned. In the scheme of things, the types of redesign needed to accommodate non-contiguous spectrum are short term costs and are minimal for all concerned. In fact, the different allocation scheme adopted for LMDS in Canada means that design changes will be needed for that market as well.

In contrast, Option 4 Prime adds an additional and crippling cost to the GSO FSS: a 20% capacity reduction compared with Option 5. Unlike the other costs, this capacity limitation is a permanent allocation decision that is practically irreversible and that hampers the ability of the GSO FSS to compete with and complement terrestrial service providers in the U.S. Innovative, interactive satellite services are on the immediate horizon that require access to 1000 MHz of uplink spectrum by small satellite terminals in order to provide adequate on-ramps to the GII. Hughes therefore urges the Commission not to make spectrum allocation decisions based on short term costs, or LMDS business plans that may change in the near future.

I. 28 GHz Is The Next Available Commercial Satellite Band

The 28 GHz band is essential to the satellite industry: it is the ***only*** commercially available band where satellites can provide universal, low cost access to the GII to every square mile of America. This band was allocated for GSO satellite use over 20 years ago in anticipation of the pressing demand for additional satellite capacity that is developing today. The existing C and Ku bands do not offer sufficient capacity to support

---

1. Some proposed LMDS service providers suggest that Option 5 may in fact be viable for LMDS. See University of Texas--PanAmerican letter dated February 29, 1996. (Option 5 may or may not be viable, but requires further study.)

these new services and no other frequency ranges are commercially available for this type of service.[2/]

The 28 GHz band is unique because it supports the use of ultra small (26") dishes that simply are not technically possible to use in the other bands available today. Over 1 billion U.S. tax dollars have been invested in the NASA ACTS satellite program, which is now in orbit, and the 28 GHz systems proposed today will build on what we have learned from that government sponsored program. The GSO FSS started this proceeding with access to 2.5 GHz of this band and it is struggling to retain access to only 1000 MHz of that 20 year old allocation.

A. The GSO FSS Should Not Bear the Burden of the LMDS Return Link Problem

It bears repeating that the LMDS return link problems that have given rise to the Option 4 Prime proposal represent a fundamental architecture change in LMDS since the 28 GHz negotiated rulemaking in 1994 and, in fact, since the Commission's Third NPRM in July 1995. While 1000 MHz of contiguous LMDS spectrum was once the LMDS battle cry (and in fact was the Commission's initial plan), we now find that Texas Instruments does not want its 150 MHz of "return links" anywhere near the 850 MHz of "forward links." In order to accommodate a new LMDS business plan, the Commission is being asked to abandon its NPRM proposal of last summer and twist and turn to accommodate a new return link requirement.[3/] At the same time, the GSO FSS, which has solved every problem the Commission has asked it to solve in this proceeding to date, is being asked to give up a substantial amount of spectrum, on a permanent basis, for this new LMDS business plan.

Two years ago, LMDS and the Big LEOs were touting the success of their ability to share the 150 MHz of spectrum that is now the sticking point in this proceeding,

---

2. Although terrestrial services are now ready to begin commercial use of frequencies above 30 GHz, those frequencies are not ready for commercial satellite use due to the long lead time needed to develop space qualified hardware, which by definition needs to be several orders of magnitude more reliable than terrestrial hardware.

3. Less than one year ago, Texas Instruments advocated yet another proposal when it endorsed in writing a band plan for a 500/500 MHz LMDS spectrum split.

and were lambasting the GSO industry for its inability to share spectrum with other services. Now, the GSO industry has risen to the challenge and developed a viable Big LEO sharing arrangement, only to find that LMDS and Motorola are now at an impasse because LMDS has once again changed its system requirements and those parties cannot figure out how to share LMDS return link spectrum. The GSO industry should not be saddled with solving this new LMDS return link problem by constraining the next generation of GSO spacecraft.

Hughes, GE, AT&T, Lockheed, Loral and Orion have each endorsed the band plan recommended last summer, now known as Option 1, as long as the sharing principles Hughes and TRW have developed are applied in the 250 MHz of shared GSO FSS/NGSO MSS feeder link band. Option 1 (the Third NPRM solution), provides 1000 MHz for LMDS, and, based on Cellularvision's recent filings with the SEC and its recent $50 million equity offering, apparently meets the needs of at least that LMDS proponent. To the extent TI's unique return link problems are to be accommodated, it can seek to use other frequency bands. In fact, given that Canada has declined to allocate spectrum for LMDS above 28.35 GHz, where the Commission plans to provide for LMDS return links, it is clear that ***systems like TI's will need to use other frequency bands outside the U.S.***

The GSO FSS started this proceeding with 2.5 GHz available to it. We have been squeezed down to 1.0 GHz by LMDS, MSS feeder links and NGSO FSS requirements. Reducing the GSO FSS spectrum further threatens the economic viability of the new class of satellite services that can be provided only at 28 GHz. There simply is no more blood left to squeeze from the proverbial turnip.

II. Impact of Option 4 Prime on the GSO FSS

The Commission is being asked to adopt a crippling allocation scheme under Option 4 Prime to provide short term cost benefits for certain types of LMDS designs. Accepting the LMDS claims on face value, both GSO FSS satellite and LMDS bear costs and system design challenges under Option 5. Both the GSO FSS and LMDS have to deal with non-contiguous spectrum and the complications it creates: other services which have allocations in between our respective bands, the need for wide-band receivers, and receive equipment that operates over a wide band and filters out the intervening services. Options 4 Prime and 4 impose the same costs on the GSO FSS, but the issue here is not primarily one of system redesign.

The problem is that neither Option 4 Prime nor Option 4 provides sufficient usable capacity for a viable broadband, two-way, direct-access satellite service in the United States. Hughes's concerns have been echoed by the other leading U.S. satellite companies: GE, AT&T, Lockheed, Loral and Orion. No other satellite operator has endorsed Option 4 or Option 4 Prime because each of us recognizes that those proposals are inadequate for modern satellite systems.

Options 4 Prime and Option 4 strike a blow at the very heart and soul of two-way, direct access satellite systems: they reduce by 20% and 12%, respectively, the capacity of a highly efficient satellite system like SPACEWAY. This means that we can serve substantially fewer people and that costs to subscribers will need to be proportionately higher. More fundamentally, considering that both Options increase system costs and reduce subscriber revenue, they correspondingly reduce the rate of return on the system by at least 20 and 12%, respectively, and therefore call into question the financial viability of the SPACEWAY system in the U.S.

GSO FSS satellite technology will be complementary to LMDS. SPACEWAY will provide critical connectivity to all parts of the U.S., both rural and urban. But satellite technology is extremely capital intensive. In order to provide the capacity needed to justify that investment and to allow satellites to serve as an integral part of the GII, satellites need to have an equivalent amount of capacity to that provided to LMDS. For these reasons, Option 5 is the most equitable solution.

Satellite technology offers a number of substantial advantages over terrestrial alternatives, including the fact that the launch of a single satellite can offer instantaneous coverage, and universal service, to all 50 states. Thus, a satellite like the SPACEWAY system will provide a critical adjunct to the Global Information Infrastructure because satellite communications are distance insensitive and provide needed service to rural parts of the country where a broadband terrestrial structure will never likely be developed.

In rural America, satellites may be the only effective way to provide distance learning, telemedicine and a high speed on-ramp to the GII. It is no surprise that LMDS will likely build out first in urban markets: that is precisely how cellular developed and how PCS is beginning to develop. It has taken over 13 years for cellular to cover 50% of the U.S. land mass and almost 98% of the population. A single satellite can cover every square mile of the U.S. instantly upon launch.

The ultimate impact of Option 4 Prime is that interactive, broadband direct access 28 GHz satellite service will likely be delayed or foregone in the United States at the very time when the Commission is fostering competition among service providers and encouraging service to rural areas.

A. Changes to GSO FSS Designs

Option 4 Prime, like Option 4, requires a unique satellite design for SPACEWAY in the U.S. The reason this design would have to be different from the standard design to be used around the world is that GSO FSS satellites will have access to contiguous blocks of 500 MHz of the 28 GHz band around the world, but would need to design for the 625/250 MHz or 675/250 MHz segments provided under those two band plans.

Hughes filed for the SPACEWAY system over 27 months ago and has been developing that system for over three years. We have designed a system that builds on existing technology that is used today for military and mobile satellite service and have expended over $10 million on those research and development efforts. Redesigning SPACEWAY to fit the unique characteristics of Option 4 Prime or Option 4 would set our program back technologically at least one year and require 10s of millions in U.S. system-specific redesign costs. Thus, we would not be able to launch until late 1999 and could not commence service until 2000 at the earliest.

These significant changes required under Options 4 Prime or 4 will have the three primary consequences: (i) delay in provision of broadband satellite service in the U.S., (ii) significantly decreased service capabilities, and (iii) increased costs to consumers.

1. Timing

Because of the redesign required under Option 4 Prime or 4, the initial roll out of SPACEWAY service will likely to be in foreign markets. Because of the resulting increased costs and lower available capacity, SPACEWAY may not make economic sense to develop for the U.S. market.

Due to the resulting redesign: (i) the GSO FSS will lose market opportunities to terrestrial competitors who are rolling out high capacity service to small businesses and residences; (ii) interactive broadband service to non-urban areas will be delayed.

2. Service Capabilities

As noted above, Options 4 and 4 Prime reduce SPACEWAY subscriber capacity by 20% to 12%. This has a direct effect on system viability because spacecraft development costs increase in the U.S. due to the need for a unique U.S. configuration. The reason for this significant capacity loss is that efficient spectrum reuse and low cost receive equipment require the use of 8 different frequency bands over the U.S. with equal amounts of contiguous spectrum in each band. Breaking spectrum up into segments that are not divisible by 125 MHz, as would occur under Options 4 Prime or 4, would result in the following actual spectrum loss:

> Option 4 Prime allows use by small terminals of only 800 MHz of the nominal 875 MHz GSO FSS allocation---a 20% spectrum loss.
>
> Option 4 allows use by small terminals of only 880 MHz of the nominal 925 MHz GSO FSS allocation---a 12% spectrum loss.

This type of a significant spectrum reduction has a critical impact on the ability of the GSO FSS to provide a wide range of interactive, broadband direct access services. Interactive, broadband services to the mass market requires a "critical mass" of capacity in order to support multiple users who desire access to bandwidth on demand. With 1000 MHz of spectrum, SPACEWAY can support about 8 million users who require two-way interactive service. If the GSO FSS does not have access to adequate capacity, it will be unable to connect calls on demand. A 20% reduction in capacity supports 1.6 million fewer subscribers over the same satellite system. This reduces the ability of satellites to complement the local loop.

The ability to support fewer subscribers will increase costs to the customers who can be served. Service costs will increase because the fixed system costs will be spread among a 20% smaller customer base and the fixed costs actually will increase due to the unique U.S. design described above. Likewise, subscriber equipment costs will increase because there will be a lower production volume for receivers

In summary, the capacity cutback under Option 4 Prime threatens the economic viability of SPACEWAY in the United States by reducing the return on investment by an estimated 20%.

B. Option 4 Prime Compared with Option 4

Option 4 Prime is significantly worse than Option 4 because it reduces the GSO FSS allocation by 20% over Option 5. The proposal under Option 4 Prime to allow GSO "gateways" to access an additional 135 MHz shared with LMDS is a hollow offer because that spectrum would likely be unusable for small, mass market, direct access satellite systems for which the 28 GHz band is uniquely suited. That proposed gateway limitation would mean that additional spectrum is inaccessible where it is needed most: in urban markets and for service to homes and small businesses.

The proposed "gateway" limitation would require a regression to an arcane satellite architecture that is no longer needed today and would inhibit the use of new technologies in this band in the future. Moreover, gateways are anathema to the 28 GHz band's ability to support broadband interactive satellite services to small businesses and residences via 26 inch dishes. With direct access service, everyone could have a wideband on-ramp to the GII from his or her home or business---not just those who can connect to the terrestrial network. Moreover, this type of architecture limitation has been rejected as unworkable by all three of the leading GSO operators who have experience in operating systems: Hughes, GE and AT&T. A similar gateway proposal was rejected by Commission last summer as an infeasible sharing solution for NGSO MSS feeder links and should not be revisited now.

* * *

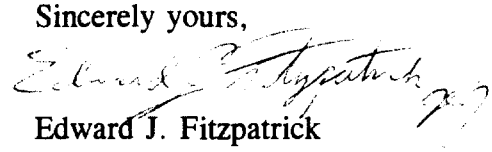
In conclusion, the loss of capacity, delay, and increased costs for the GSO FSS under Option 4 Prime (and Option 4) mean that a viable, interactive broadband service delivered to small businesses and residences by satellite may not be economically viable in the U.S. In contrast, these systems would be attractive for international applications, where at least 2 GHz of the 28 GHz band remains available for GSO FSS use.

The Commission's Third NPRM in July 1995 recognized that the GSO FSS requires access to 1000 MHz of spectrum. The Commission challenged the GSO FSS industry to find a way to share 250 MHz with NGSO MSS feeder links and we found a solution. Because Options 4 and 4 Prime would reduce the usable amount of GSO FSS spectrum, four existing GSO operators (Hughes, AT&T, GE and Orion) and two spacecraft manufacturers (Loral and Lockheed) unanimously oppose Options 4 Prime and 4 and agree

that Option 5 is a viable solution for the provision of competitive, universal, broadband 28 GHz satellite service in the US. Alternatively, the Commission should pursue the proposal in the July 1995 NPRM (Option 1) and accommodate the new and unique LMDS return link needs of some LMDS proponents in another band.

Either Option 5 or Option 1 provides the spectrum that is required to allow a variety of exciting new wireless services to be brought forth in the next few years. We strongly encourage you to adopt one of those two solutions as the reasonable compromise that maximizes the service opportunities from which the public may choose.

Sincerely yours,



Edward J. Fitzpatrick
Vice President

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Mr. Brian Carter
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Vice President

March 15, 1996

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Michele Farquhar
Chief, Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

Re: CC Docket 92-297
28 GHz Spectrum Band Plans

Dear Mr. Harris and Ms. Farquhar:

Hughes Communications Galaxy, Inc. is writing in response to letters submitted on March 6, 1996 by Cellularvision, Texas Instruments, Hewlett-Packard, and Endgate Technologies with respect to the cost impact of certain 28 GHz band plan options.

These parties have written in response to Hughes's letter to you of March 1, 1996. Hughes wrote that March 1 letter, in turn, in response to specific allegations made by TI in a letter dated February 28, 1996 about the cost to LMDS under Option 5.

The responses of the LMDS parties are more significant in what they omit than in what they say. ***Not one LMDS proponent has even attempted to quantify the financial or time delay costs that it claims would be imposed on its system under Option 5.*** All these letters provide are vague and unsubstantiated references to technical and cost implications.

A. Basis for Hughes Letter

In its February 28 submission on LMDS costs, TI focused on the argument that Option 5 would increase the costs of LMDS set top boxes, because the LMDS bandwidth under that plan would exceed the bandwidth of the set top boxes designed for DBS receivers and would not permit the manufacture of competitively priced set top boxes for LMDS.

Hughes Communications, Inc. P.O. Box 92424 Los Angeles, CA 90009 Phone: (310) 364-4840 Facsimile: (310) 364-4841

Using TI's own baseline of a DBS set-top box, Hughes provided data in its March 1, 1996 submission about the type of box that will be used in the US by both the upcoming Echostar and Alphastar direct to home satellite services, and concluded that the only change required in these types of boxes for LMDS to receive across the entire 1000 MHz allocation is an inexpensive change to the tuner in those boxes. Significantly, at that time TI made no mention of LMDS "downconverter" costs under Option 5.

B. Response to Cellularvision

Cellularvision responds in its March 6, 1996 letter that Hughes has focused on the wrong part of an LMDS system. Cellularvision agrees with Hughes that the frequency range of the set top box, which TI said was a problem, is irrelevant. But Cellularvision instead argues that "Option 5 ***could*** force extensive and expensive modifications to ***some*** LMDS receiver/downconverter designs." Cellularvision March 6 Letter at 2 (emphasis supplied).

Curiously, Cellularvision does not claim that its existing LMDS system would be adversely impacted by Option 5. Rather, it complains that this is a problem for other types of LMDS designs whose hub-sub and sub-hub transmissions operate in separate bands. Based on publicly available information, the Cellularvision system architecture is not designed this way. Instead, Cellularvision allows sub-hub links to be interspersed within the same frequencies as the broadcast transmissions. Thus, Cellularvision should not have any issues with Option 5 since its system is not affected.

C. Response to TI, Endgate and HP

The joint TI, Endgate and Hewlett Packard letter submitted on March 6 now abandons the previous arguments TI made about the cost of tuning over a wide spectrum band and instead make vague and unsubstantiated assertions of increased costs and delays. ***Not once are these delays or costs quantified.*** While we are told that Hughes has "overlooked" certain complexities that TI did not raise before, nowhere do these parties tell why these complexities are a problem that cannot be resolved. They do not explain why the 250 MHz of guard band provided in Option 5 is not sufficient. Nor do they explain why the inexpensive ($1-2) filters used in automobile radios to tune out unwanted signals cannot be similarly used by LMDS. In any event, it is clear that any required modifications to hub antennas will be dwarfed by actual cost of each LMDS hub site, which Cellularvision's SEC filings estimate at $500,000 per site.

D. Conclusion on LMDS Costs

What the March 6 LMDS letters reveal is that the cost implications described are focused on one of the many LMDS point designs that is being considered: Texas Instrument's proposal for 850 MHz of outbound links and 150 MHz of separated, return links. However, it is clear that there are LMDS architectures that claim to require use of the full 1000 MHz for out bound links and that these systems will bear similar design costs under ***any*** band plan.[1/]

What we are hearing from LMDS now is that it will go digital some day, it eventually may turn into a two-way service, and that it eventually may use the full 1000 MHz allocation proposed by the Commission.[2/] In the meantime, however, it appears that LMDS wants to compete with the cable industry by providing TV distribution through outmoded analog technology. While Hughes has no objection to this type of a gradual implementation, it is crystal clear that when LMDS is ready to go two-way and digital, and when it is ready to use a full 1000 MHz, it will need to modify existing equipment. The cable compatible boxes that Cellularvision describes will not work for two way LMDS service: new boxes will need to be developed. Even TI, Endgate and HP recognize that there is no "off-the-shelf" LMDS set-top box. ***When the equipment design is not mature, there simply can be no significant cost impact on LMDS equipment from the use of non-contiguous spectrum under Option 5.***

E. SPACEWAY Transmitter/Receiver Design Operates Across a Wide Band

Cellularvision tries to distinguish its system design costs from SPACEWAY by describing how SPACEWAY terminals could be designed to operate over a narrower spectrum range than LMDS. Specifically, Cellularvision argues that under Option 5, LMDS would be required to "downconvert" a wide range of spectrum that includes a number of satellite services, but that the SPACEWAY does not bear that same burden. Cellularvision is wrong.

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1. Based on public filings, Cellularvision plans to accommodate "return" links within the same bandwidth used for its outbound links.

2. In contrast to Cellularvision's statements, TI, Endgate and HP state that for LMDS, "the maximum band spread in one direction would be only 850 MHz." March 6 TI Letter at 2.

First, this is not how Hughes has designed its equipment (each of our customer terminals can receive and transmit over any part of a 2.5 GHz range). Thus, SPACEWAY equipment will be able to operate over a much wider range of frequencies than any LMDS systems described to date and will bear all of the same wide band receiver and demodulation costs that LMDS complains it will incur with non-contiguous spectrum. More fundamentally, Cellularvision's hypothetical satellite architecture makes no sense because it would cost significantly more to make a dozen of more frequency specific terminals for distribution around the world that it costs to make one standard, mass marketable equipment set. The bottom line is that the cost imposed on SPACEWAY terminal equipment by the Commission's proposal to allocate GSO FSS non-contiguous spectrum is similar to that imposed on LMDS under Option 5. ***Every*** SPACEWAY terminal will be built to tune over the entire 28 GHz band and will be built to reject the unwanted intervening signals from LMDS and non GSO satellite systems. SPACEWAY intends to compete in the mass market and therefore will need to provide cost-competitive user equipment. If low cost satellite terminals can be built for satellite use, they can be constructed for LMDS use as well.

F. Under No Band Plan Would Satellites Have More Usable Spectrum than LMDS

TI, Endgate and HP and Cellularvision also are wrong when they argue that the GSO FSS will have more spectrum in which to operate at 28 GHz than LMDS. Under Option 5, each of LMDS and the GSO FSS would have 1.0 GHz of spectrum. Due to the nature of satellite communications, satellites do transmit and receive in different frequency bands: an uplink band and a downlink band. If they used the same frequency band for uplinks and downlinks, they would create self-interference. But the sum total of a satellite's capacity is limited by the amount of its uplink spectrum, which is 1000 MHz in the case of Option 5.[3/] This same 1 GHz of spectrum would be used for both inbound transmissions to customers and for out bound transmissions from those same customers. Stated another way, just as LMDS hub-sub and sub-hub links have to share 1000 MHz under Option 5, so do satellite users. The only difference is that the design of satellites is flexible enough that inbound and outbound links can use the same frequency band.

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3. The reason the FCC has proposed to allow the GSO FSS to access up to 1.6 GHz of downlink spectrum is to deal with difficult coordination issues in the downlink band, which will limit the useability of certain portions of that band. A GSO FSS satellite simply cannot use more spectrum in the downlink band than it actually has in the corresponding uplink band.

G. Auction Revenues Are Irrelevant

Finally, the opinions that TI, Endgate, and HP make about projected LMDS spectrum auction revenues under Option 5 is not only speculative and unsupported, but it also is irrelevant under applicable law. Not only is the Commission's competitive bidding authority inapplicable to interservice allocation decisions, but the Commission also is prohibited from assigning a band of frequencies for licensing by auction based on the expectation of the federal revenues that will be generated.

* * *

Cutting through all of the technical discussion in the LMDS letters, the bottom line is that virtually every service bears some system redesign costs under ***every*** band plan under consideration. The GSO FSS and some LMDS proponents would prefer 1000 MHz of contiguous spectrum in the U.S., but no one will get that, so we each need to make appropriate compromises and design adjustments to allow all proposed services to proceed as planned. In the scheme of things, the types of redesign needed to accommodate non-contiguous spectrum are short term costs and are minimal for all concerned.

In contrast, Option 4 Prime adds an additional and crippling cost to the GSO FSS: a 20% capacity reduction compared with Option 5. ***Unlike the other costs, this capacity limitation is a permanent allocation decision that is practically irreversible and that hampers the ability of the GSO FSS to compete with terrestrial service providers in the U.S.***

For these reasons, four existing GSO operators (Hughes, AT&T, GE and Orion) and two spacecraft manufacturers (Loral and Lockheed) unanimously oppose Options 4 Prime and 4 and agree that either Option 5 or Option 1 is a reasonable compromise solution to this three-year old proceeding that allows each service its required amount of spectrum and provides an opportunity for the public to chose from a multitude of competitors.

Sincerely yours,

Edward J. Fitzpatrick
Vice President

cc: Chairman Reed E. Hundt
Commissioner James H. Quello
Commissioner Andrew C. Barrett
Commissioner Susan Ness
Commissioner Rachelle Chong
Mr. Rudolfo Baca
Ms. Lauren Belvin
Mr. Brian Carter
Ms. Jackie Chorney
Ms. Jennifer Gilsenan
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Mr. Robert James
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